



The Successful NG911 Transition

A CASE STUDY OF THE CALIFORNIA OFFICE
OF EMERGENCY SERVICES (Cal OES)

INTRODUCTION: WHY NEXT GENERATION 911 MATTERS TO US ALL

As a public safety professional, you know better than anyone that every single American benefits from 911. You also understand that the technology that officially placed the first 911 call on February 16, 1968, in Haleyville, Alabama, has outlived its usefulness.

What has been a lot less clear in recent years is how we as a country will upgrade the roughly 6,000 independently operating public safety answering points (PSAPs) to a 21st-century system in which those 6,000 entities are interconnected and interoperable.

Depending on where you live, the transition to next generation (NG911) may have already begun. Still, across the U.S., most agencies and governments at every level are wrestling with how to make the shift. The stakes are big, after all. NG911 is costly and it's critical that this upgrade doesn't compromise our ability to meet the needs of our communities.

But if the stakes are great, so too are the benefits: Next-generation emergency communications will be more resilient, reliable and efficient. They'll allow citizens to communicate with PSAPs not just by voice but with photos, video and text. We'll be able to "call" for help via smart sensors, vehicle telematics and alarms, as well as through "Internet of Things" devices like smart speakers and wearable medical devices.

The data that PSAPs receive will be more actionable and intelligent, allowing public safety to dispatch the right resources to the right location as quickly as possible. Additional information will also make it easier for PSAPs to staff centers more cost-effectively and connect with neighboring jurisdictions to back one another up during a disaster or outage.

These and other benefits—including those as yet unimagined—make NG911 not just important but essential to every one of the more than 331,000 million Americans we serve.



WHAT IS NG911?

NG911 is an internet protocol (IP)-based system made up of hardware, software, data and processes that enable and support 911 calls and data, as well as call and data transfer among PSAPs. In NG911, the IP network is an ESInet, or Emergency Services IP Network, that can be shared among public safety agencies. A set of services called NG911 Core Services (NGCS) are needed to process a 911 call on the network. NG911 has the ability to process voice, text, data and multimedia messages and is secure, reliable and can be interoperable with other services and networks used by first responders. Every NG911 system must include GIS (geographic information system) and CPE (call-processing, or call-handling, equipment).

EXECUTIVE SUMMARY

Slowly but surely, public safety is making its way to becoming fully Next-Generation 911, one PSAP at a time. In the meantime, there are still plenty of states, cities and agencies who would benefit from hearing how others are doing it. And with 40 million people spread across 58 counties served by nearly 450 PSAPs, almost no one has a bigger NG911 mountain to scale than California.

While it's tempting to think of the NG911 as a technology solution—and certainly that is part of it—there are other considerations of equal or even greater importance. This case study turns a laser focus on what the Golden State has learned along the way to its own transition to Next-Gen, taking a holistic approach to unearthing some of the most valuable lessons to be learned.

Through that macroscopic lens, we've organized our findings about California's NG911 upgrade, led by 9-1-1 Branch Manager Budge Currier of Cal OES (California Office of Emergency Services), into three primary buckets:

- **PLANNING**
- **LEADERSHIP**
- **COMMUNICATION**

If you can nail these three aspects of your own transition, you're likely to be golden. Within each topic, you'll find actionable lessons and advice to apply to your own upgrade. Whether you're starting small or moving to a full transition, there's guidance on a wide range of topics, from putting together your RFP and convincing naysayers to choosing the right leaders and planning your cut-overs.

Across the country, legacy networks are failing at an incredible rate, well beyond acceptable norms. It's just because the network is so old.

*— Darold Whitmer,
Senior Vice President,
Strategic Relationships, NGA 911
(a Cal OES vendor)*

CASE STUDY: CALIFORNIA'S TRANSITION TO NG911

California's legislature mandated the state's 911 system back in 1972, with a deadline of December 31, 1985 for making the entire state operational. Since then—as in most places across the country—that basic infrastructure has remained largely unchanged.

In 2010, the branch of California's government that handles 911, Cal OES (California Office of Emergency Services), published the first proposed roadmap to NG911. In the years that followed, several pilot projects at PSAPs were implemented around the state.

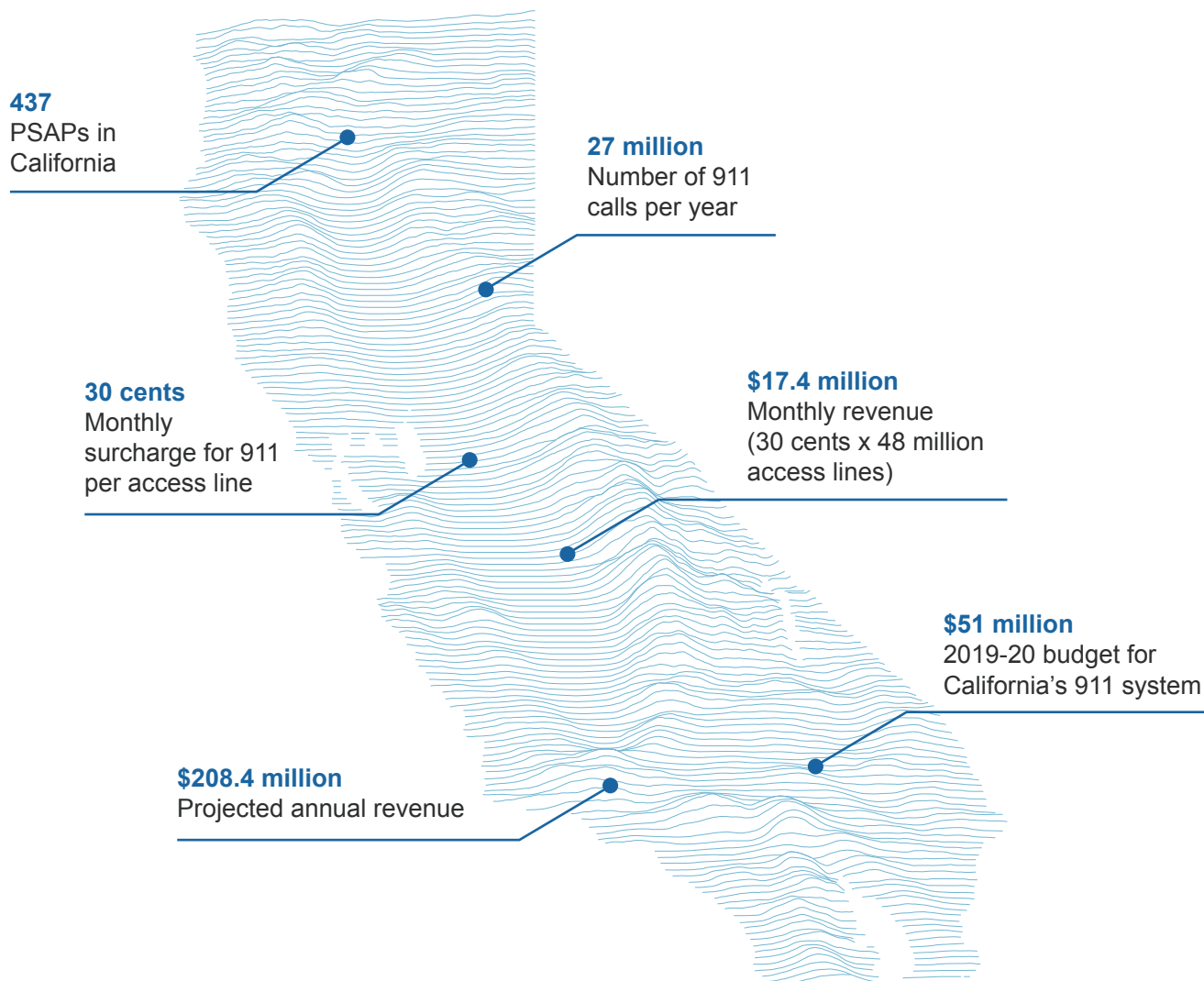
Fast forward to 2017, when California released the "NG9-1-1 Transition/Implementation Plan," which guides its work today (with updates since its initial release).

Since then, the 23-person team at Cal OES, which sits in the division of Public Safety Communications and is led by 9-1-1 Branch Manager Budge Currier, has been hard at work making NG911 a reality for every one of the state's 437 PSAPs.

At the highest level, Cal OES has three stated goals for the transition to NG911:

- **Improve the accuracy of 911 call routing**
- **Deliver 911 calls to the correct PSAP faster**
- **Don't impair operations at PSAPs**

911 IN CALIFORNIA, BY THE NUMBERS



WHAT MAKES FOR A SMOOTH NG911 TRANSITION?

In thinking about making your own switch to NG911, it's tempting to focus on funding (*how are we going to pay for this?*) and technology (*how, exactly, are we going to do this?*). And those things do matter, of course.

But in looking at the tremendous progress California has made so far in its statewide transition to NG911, the factors that have had the biggest impact on their success—meaning not just what they've accomplished, but how difficult or less difficult it's been to achieve these things (it will never be easy)—come down to these:



**GOOD
PLANNING**



**GOOD
LEADERSHIP**



**GOOD
COMMUNICATION**

There's natural overlap between all three, but in this case study we'll take each in turn to discuss key takeaways and lessons learned (including those that relate to funding and technology) based on Cal OES' experience.

California is, of course, a unique situation. It is bigger in every way than almost any other state and even many regions. Everyone who makes the transition to NG911 will do so in their own way; this is just one example. That said, this paper will focus on lessons that virtually any state, region, city, or even agency can put to use. Plus, we've included insights from several other states that are also undertaking their own upgrade to NG911 or have completed it.

While this document contains the names of companies and agencies that contributed to the development of this document and participate in NG911 projects in California and across the country, their inclusion does not represent an endorsement of any kind.

Do the right thing. If you do the right thing, it will never come back to hurt you.

**— Budge Currier,
9-1-1 Branch Manager, Cal OES**



GOOD PLANNING

VET YOUR TRANSITION PLAN. After two years of working to create their plan, Cal OES wanted lots of eyes on it well before the RFP was released. The team met often with the state's 911 advisory board; other states who'd completed some or all of their own NG911 transition; and California's PSAP community. They also hired a third-party consultant to validate the plan and held individual meetings with about a dozen vendors, including telecommunications companies, VoIP providers, wireless carriers, and originating service providers (OSPs). "At that point," says Currier, "you have a pretty good idea of what success looks like and you take that vision into the request for proposals (RFP) process and contract-execution process."

THINK ABOUT HOW YOU'LL DEVELOP YOUR NETWORK RFP. You already know that you'll need to create a clear, detailed RFP when seeking the vendors who will put your NG911 network and related technologies in place. Currier first made sure that companies understood that their products would need to comply with the NENA i3 standard—both now and going forward. "They knew they'd have to support this and future versions of the standards, at no cost to the state," says Currier. "Then we identified key things that we knew from a technical perspective needed to be in place to make it successful in California." The Cal OES RFP's statement of work (SOW) also noted that anything not explicitly stated, but an implied task in order to accomplish the mission, would be included at no cost to California. In other words, no change orders would be issued for anything required to get NG911 in place.

CONSIDER YOUR CONSULTANTS. Maybe you don't know a lot (or anything) about Next-Gen technology and you want to hire someone to help you get your RFP and your deployment right. There's no shortage of consultants who can help with this heavy lift. But Currier thinks that if your team uses only outside vendors and consultants, "you'll lose out on the local state 'flavor,'" he says, stressing that he's not disparaging consultants in any way. "They're experts in their field, [but] they're not experts in your state. You've got to have somebody involved in the process that understands technology, regulation, budgets and procurement processes at the state level, and that might be multiple somebodies, as it was in our case," he continues.

You might consider hiring a temporary person who's a state (or city or agency) employee and can represent your needs to work through the process with you, explains Currier. "We're really blessed in that we have a lot of technical depth in California, so I was able to bring all of those pieces and didn't have to rely on consultants at all." The Cal OES team was already familiar with the state's size and complexity, and its somewhat unique risks, like long and (recently) devastating wildfire seasons and earthquakes. Similarly, your state will also have its own requirements, history and context to consider.

TALK TO OTHERS WHO'VE DONE WHAT YOU'RE TRYING TO DO. "They've done good work in NG911 in Texas, and Christy Williams has been a leader in the NG911 world," says Paul Troxel, Cal OES' Division Chief, 911 Program Management. "We had her team out to California and talked about lessons learned about CPE contracts and call-handling." Washington State's conversion of all state PSAPs to IP and their experience testing the integration were also instructive for California. "Through the [National Association of State 911 Administrators \(NASNA\)](#), we really have a wonderful way to have those collaborations," notes Currier, adding that he talked to as many as 20 states as well as those behind the "[Next Generation 911 Interstate Playbook](#)," created by the National 911 Program.

In September 2018, the Cal OES team held a two-day symposium, inviting every state to come to talk about NG911 deployment; more than a dozen made the trip. These conversations helped California discover details they had not considered while also providing an opportunity to validate the plan they'd developed.

It may be that you decide your goals are different than other states'; for instance, your initial plan may focus on just making the transition to an IP network or upgrading your equipment, or you might want to go straight to a NENA i3 standard-compliant solution.

SHARE YOUR VISION EARLY AND OFTEN. One of the first things Currier did to get things rolling was present an overview of the Cal OES plan to the state's governor-appointed 911 Advisory Board. "He got the board's buy-in and explained it in a way that everyone can understand regardless of background or knowledge of technology," Troxel says.

“And he asked the board members to go talk to their groups to share the message.” Currier sees members as a crucial sounding board, adjusting Cal OES’ plans where needed according to their questions or concerns.

A long-range planning committee (LRPC) for California’s Next-Gen transition was already in place when Currier arrived. He and his team decided to create workgroups and task forces within the committee that could be very nimble. These groups conduct research and analysis into specific topics that needed a deeper dive, like a geographical information system (GIS) and policy routing. Talking to PSAP personnel helped give Cal OES more operational perspective, too. The workgroups’ findings were then reported back to the LRPC, who could in turn pass on actionable items to be voted on by the 911 Advisory Board.

EXPECT THE UNPLANNED-FOR. It probably goes without saying that an undertaking as complex and monumental as moving more than 400 PSAPs across 58 counties to a new system will have a few hiccups along the way. The Cal OES team, for example, couldn’t have predicted the slowdown of equipment installation at PSAPs because of COVID-19. Not only was the supply chain affected by the pandemic, but some equipment also wasn’t able to support the NENA i3 standard — a requirement — and there wasn’t the personnel to do the installations according to the schedule. “Inevitably, some disaster is going to strike the PSAPs during deployment. So have a conversation early on about what to do,” advises Currier. “Right now, it’s the pandemic and civil unrest that are probably the two most likely scenarios for states,” adding that while your first inclination may be to slow down your NG911 deployment, “in reality the very technology you’re delivering [PSAPs] helps them meet the current challenge they’re in.”

The 911 community is filled with the most creative, amazing, problem-solving people you’ll ever have a chance to meet. So if there’s a problem, they’ll figure out a way through it.

— John Chiaramonte,
President,
Consulting Services,
Mission Critical Partners, LLC

BEYOND CALIFORNIA:

5 Lessons from the Metropolitan Washington Council of Governments (MWCOG)

It was a devastating storm in June 2012 that first galvanized members of the Metropolitan Washington Council of Governments (MWCOG) to explore a regional approach to implementing NG911. A collaborative council, MWCOG covers 24 government jurisdictions in Washington, D.C., the commonwealth of Virginia and some counties in Maryland; together, these make up the National Capital Region (NCR). Here are five lessons learned from their path to NG911:

1. Create a master RFP that others can use. When it came time to create a Request for Proposals, Virginia's Fairfax County – the most populous in the MWCOG region – took the lead. “We had three different states trying to procure something, so we decided we needed one procurement vehicle and Fairfax took that on,” explains Karima Holmes, who led 911 services for the District of Columbia from 2016 to early 2021 and served as a vice chair of MWCOG's 911 Directors Committee. “Any participating entity with any interest in joining this Next-Gen 911 collaboration could use that one vehicle to get things done.” Recognizing that rules and regulations for securing next generation services and equipment could likely vary a lot between the three areas, the 911 Directors group needed to make sure that all equipment purchased would work together and follow the rules of each state, not to mention fit into each region's budget.

2. Remember that local control still matters. In a regional collaboration, the needs of jurisdictions are always going to be at least somewhat different from one another. Maybe it's geographical size or number of PSAPs or budget or how much of a political priority NG911 is (or isn't) where you are compared to your neighbors. Still, no one likes someone being told they must use a specific piece of technology or adhere to rules they didn't help create. “One of our lessons learned was that we had to be, I don't want to say political, but we had to have some business acumen to get things done,” says Holmes, stressing how important talking to stakeholders at every level was to the success of the region's NG911 project.

3. Respect one another's schedules. “The 18 PSAPs within MWCOG are all on different timelines. There are only two in the region that now consider themselves completely NG911 – Fairfax County and Loudon County [in Virginia,]” Holmes notes. “The D.C. PSAP plans to go 10% live next-gen 911 in May 2021.” Small call centers with few resources may

need to move more slowly – and that's fine.

4. Keep your eye on the prize. Ultimately, says Holmes, the goal is for all 18 PSAPs in MWCOG to be able to receive emergency communications through the ESInet from all carriers and transfer any call where it needs to go. “Say we have something horrible happen in D.C. and I'm overloaded with calls. We will have measures in place where, let's say, 25% of D.C. calls start going to Montgomery County [in Maryland]. It's seamless for the caller because we are going to be on the same ESInet.”

5. Plan for the end. MWCOG has made tremendous progress: The region's ESInet build-out with AT&T is done. So are the upgrades to most equipment and overhauls of the telephone, radio and CAD systems. When you reach the latter stages of your transition, says Holmes, create groups that each focus on one specific task. “About a year ago, we realized we were coming to the finish line,” she says. “So we created three committees: IT, governance and operations.” The first handles procurement of equipment and working with vendors; the second is charged with taking care of contracts and ensuring regulations are met; and the ops team determines how a wide variety of situations, including call transfers and protocols during disasters, will be handled.

To learn more about MWCOG's transition to NG911, read the National 911 Program's “[NG911 Interstate Playbook – Chapter 3: Implementing State-to-State 911 Connectivity: Lessons Learned, Challenges, and Opportunities](#).”

RFP release
2018

Transition to NG911
2020 (Fairfax & Loudon Counties, Virginia); Spring 2021 (District of Columbia); ongoing (others)

Number of PSAPs
18 (in all MWCOG jurisdictions)

Telecommunicators
200 (D.C.)





GOOD LEADERSHIP

Plug the holes. Currier is a rare combination of skills and experience—an engineer who also has experience in procurement, project management and working with legislators. “If you as a leader have a gap in any one of the areas, you have to find a person to fill that gap so that you have a complete picture from a leadership perspective,” he recommends. “And filling that gap with a vendor is very difficult.”

Rely on your subject matter experts. Currier was clear about hiring not only a team with diverse skill sets, but those who’d build good relationships within and outside of public safety. (“You have to hire people who are so good that they sort of intimidate you,” he says. “They’re that good.”) His core group includes engineers with experience in government and the private sector, a deep knowledge of the legacy 911 environment and an understanding of vendors’ perspective. Others are gifted bridge-builders and project managers who know exactly whom to call, whether it be in San Diego, Sacramento or around the country. And Currier is the first to acknowledge that experts in California’s Department of Technology, Cal OES Legal Counsel, the Public Utilities Commission, and other government agencies were critical.

Say what needs to be said. If you’re the point person for your agency’s NG911 upgrade, chances are good you’ll be talking to a lot of different audiences: PSAP staff, legislators, vendors of all kinds, people in other parts of local and state government, media, and maybe a public utilities commission, which in California regulates 911.

That almost inevitably means sometimes telling people something they don’t want to hear. Currier’s team says their boss’s willingness to speak up (usually diplomatically) has been invaluable in their success so far. And he’s largely been able to convince naysayers by backing up statements with knowledge, experience and a clear vision that’s shared regularly with all stakeholders, at every level. Paul Troxel cites an example that came up regularly in talking to PSAPs around California: “Dispatch is often afraid of NG911 because it brings in pictures and videos,” which may be disturbing for some telecommunicators to see. “Budge says, ‘that’s not what NG911 does, let’s demystify this,’” explains Troxel.

“NG911 does open the ability to do this, but that’s not why we’re doing it; it will give you actionable intelligence on a 911 call. Try it, and if it doesn’t work, let’s evaluate an alternate path.”

Create a place where managers can speak out. When Paul Troxel joined Budge Currier’s team, the 24-year PSAP veteran willingly took a pay cut; he’s never looked back. “Every member of our team can sit down in a meeting, close the door and say to Budge, ‘that’s not the right idea,’” Troxel says. “And he will take that feedback. He may or may not adjust direction, but he listens to the team and he validates what we’re thinking. We have other people on the team who provide very similar leadership style, and they make this an amazing team.” Currier echoes the sentiment: “As a leader you have to equip your team to tell you the truth, even if the truth is hard to hear and not necessarily in alignment with what you want to do.”

The culture created by a spirit of honesty and openness has also made it simpler to talk through challenges when they arise. “Any problem that we encounter, usually within an hour we’re in a meeting with the core leaders and we’re talking through the problem,” explains Currier. “They’ll all weigh in and I’ll say, ‘okay, what do you think are our options?’ And we’ll talk through it and make a decision on a path forward. That problem resolution is what we do for every single thing we encounter on the entire project.”

A leader in NG911 not only understands what next-gen is and what the transition requires, but they are also aware of what they don’t know. Anybody leading at that level should not be afraid to ask for help because I don’t know of a single person who does know it all.

– Harriet Rennie-Brown,
Executive Director,
National Association of
State 911 Administrators (NASNA)

5 Lessons from Massachusetts

1. Test, test, and test again. Even before cutting over their very first PSAP to next-gen Massachusetts did a lot of testing of alternate routing, says Norm Fournier, deputy executive director of the Massachusetts State 911 Department. “It’s very important that if one PSAP goes down, there’s an alternate PSAP, and then we would have a third PSAP to route calls to. So if both those PSAPs had issues, the call would go to another one; we wanted to make sure all those routes worked.” What’s more, Massachusetts ensured that calls initiated on a legacy system could be successfully routed to a next-gen PSAP and vice versa. “All those different scenarios of fail-over had to be tested,” Fournier explains, adding that the system had resolve, too, what to do if a 911 call rang busy or rang with no answer. “Especially with our smaller PSAPs, you could have one dispatcher on and they’re on a call when another 911 call rings in. All those scenarios had to be written out and scripts made and then tested. Not a trivial task.”

2. Prioritize dispatcher training. In just over one year, the state trained more than 5,000 dispatchers on the new NG911 system. “We take training very, very seriously,” stresses Fournier. “PSAP personnel are in charge of saving people’s lives, not being techies. So we made sure that even if the simplest thing changed in their job or they had an issue, they would know what to do.” To that end, the 911 department also introduced a single help desk number that any telecommunicator can call for support or service, alleviating the need to reach out to multiple vendors.

3. Pay attention to connection points. “What I’ve found throughout my career is that where two systems touch each other, that’s almost always where there’s an issue,” Fournier says. In transitioning to NG911, it’s not uncommon for vendors to say, “I’ve tested my end and it works,” without ensuring that systems operate together. “Make sure you get folks to really discuss and hash this out,” says Fournier, who notes that it can be as simple as getting everyone on a conference call. “If a call rolls over where the systems touch — where the legacy system hands it over to next-gen — and it didn’t work perfectly, you need to get all sides talking to each other instead of at each other.”

4. Plan your cut-overs well. When it came time for each center to transition from its legacy system to NG911, a state 911 department employee was on-site to oversee

the process. Fournier says preparing his team well for “this massive effort” was essential; it included coordinating with call centers about getting ESInet circuits up and running, keeping the state 911 Commission informed, figuring out when to start paying for next-gen service (the state outlined in its RFP that they would begin paying not at the cut-over, but once vendors could report the system was working to defined specs), determining how long to keep the legacy system functioning, when to shut down selective routers and much more. Even the best-laid plans can be foiled, of course. “At the end of the day, the public safety piece is always first, so you have to be flexible with that,” adds Fournier.

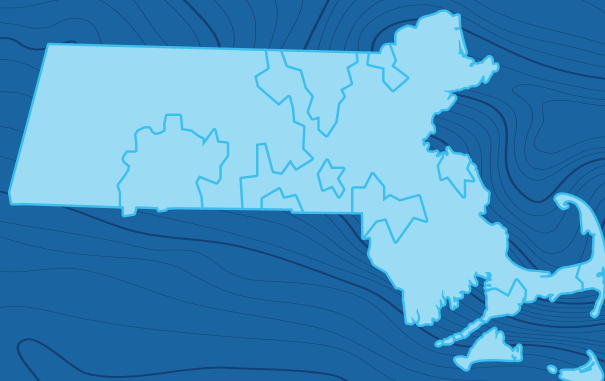
5. Conduct at least one external security audit. General Dynamics was initially the state’s prime vendor for NG911 (it’s now Comtech). “[General Dynamics] designed a secure system, but I still recommend having a fresh set of eyes in there to look at security,” Fournier says. “Most important, put it in your RFP that the vendor needs to submit to that.” Everyone says they are secure, he notes, but having another vendor review the system for any points of vulnerability is essential. “I’m not saying cripple your system, but ask the external vendor to give ideas to help lock down the system even more,” he suggests. “Best-case scenario, they come back and say, ‘you guys are as tight as a drum.’ Or they find some things and you take care of it and move on. Either way, it’s all good.”

RFP release
2014

Number of PSAPs
240, initially; now 220

Transition to NG911
January 2018

Telecommunicators
5,000+





GOOD COMMUNICATION

Overcommunicate. NG911 is complicated. It's highly technical and it's also disruptive to the very customers you're trying to serve—the PSAP. That's why Currier, Troxel and Cal OES unit supervisor Andrew Mattson and their colleagues at Cal OES continue to message the plan, its progress, and its impact again and again. "Before the COVID pandemic, we were on the road constantly, all the time," remembers Andrew Mattson, Unit Supervisor, Advisory and Compliance Unit at Cal OES. "We went on a statewide tour when we were getting ready to actually start deployment—we did it twice, actually." Each tour included 13 stops at town-hall-type meetings with local PSAPs. When COVID hit, they switched to virtual meetings. Each of the four meetings they held in spring and summer 2020 drew an average of about 100 people.

"That communication was just really, really important because PSAP staff are busy with their day jobs," he continues. "They don't necessarily see what's going on 300 miles away in Sacramento. So, it was paramount for us to get out and in front of them as often as we could. If any county was holding a meeting, we would go—no questions asked. You have to get in front of them once we get over the pandemic; it's not enough to send emails and stiff memos and put plans on the website. That doesn't cut it."

It was especially important to explain what, exactly, would happen when it came time to install equipment in a PSAP's backroom, a process that requires multiple visits and can disrupt operations. "We tell them upfront, then a second and third time," says Currier. "Any time we do something major that has a potential to impact the PSAP, we do an outreach meeting... We have regional coordinators who work directly with the PSAPs...and we're in constant communication within our teams, with the vendors, with the PSAPs, with the 911 Advisory Board, and with OES executive leadership. I even have recurring meetings with members of the legislature to give them updates on the project." Cal OES met individually with the state's OSPs—AT&T, Verizon, T-Mobile/Sprint, Frontier and others—to discuss the integration and build-out and testing of their next generation core services (NGCS) and with vendors to communicate the transition plan.

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"That's what I mean by overcommunicate," Currier emphasizes. "You've really got to make sure that everybody understands what the state is doing and that they have the freedom to voice their concerns."

Listen, listen, listen. Sharing what's happening is only half the battle, of course. You've got to really hear what people say in response, whether it's questions, worries or an outright lack of faith that you can pull off what you're planning. "You have to listen to them, you have to get feedback from them and you have to actually absorb that feedback," stresses Mattson, who led the creation of the RFP for call-handling solutions at Cal OES.

Build bridges. "Budge had me build four regional task forces comprised solely of PSAP personnel, each with about 12 members," recalls Mattson. The task forces met quarterly and, pre-COVID, the Cal OES team would travel around California to talk about the deployment of NG911 and how it would affect PSAP operations. "We vet everything we're doing through these groups so that we have a real sense of collaboration with the PSAPs." Mattson says the candid (and unrecorded) nature of their conversations with the centers has been essential: "We just talk and maybe bring four or five slides on a PowerPoint. It's really just a back-and-forth of dialogue with the PSAPs. That's what makes it so effective."

Acknowledge the fear. Not only is there significant confusion about what NG911 actually is, PSAPs typically have plenty of questions about what this change will mean for them and the work they do. Be prepared to authentically address concerns about the reliability and security of the new network, what it means to handle new kinds of data (especially real-time video and images, as noted earlier), training, workload and consolidation, and to be very clear on the benefits of NG911. “They want to know, ‘how is this going to be better than what we have today?’” says Mattson. “All of our vendors now have to be cloud-based or data-center-based. There’s not going to be any more back room equipment at the PSAPs for call-handling. That’s a big shift for them.”

Call “BS” when you have to. Troxel remembers a situation in which a vendor told the Cal OES team that there were things they wanted that simply weren’t possible, that the technology didn’t exist to support it. “Budge said, ‘yes, we can do that,’ and cited technology that does what we’re trying to do. Because of his background, he can speak intelligently to technology.” In the end, the vendor acquiesced.

Which is not to say that you need to be an expert in the latest 911 technology to communicate with authority. The Cal OES team also talked to a number of tech experts outside of emergency communications, just to understand what was possible, including people in Silicon Valley and in public safety but not 911. These conversations were crucial in validating what was possible. Afterward, says Troxel, “we came back to our list of providers and said, ‘this is what we want.’”

Educate those who hold the purse strings. As California began planning for NG911, it soon became clear the state’s funding model wouldn’t be enough to pay for the upgrade from 1980s-era technology. On average, consumers paid about 14 cents per month for 911 services into California’s SETNA (State Emergency Telephone Number Account) fund, an amount based on intrastate (in-state) calls.

But even though the number of devices accessing 911 was increasing, that revenue had been declining, dropping some 40% in the previous decade, to about \$60 million per year. Governor Jerry Brown added trailer legislation to the 2018-19 budget to change the fee structure and raise more money for NG911. The bill, though, failed by a single vote.

“After that, we took a step back and came up with a plan of how we could educate legislators about the value of NG911,” and reintroduce the bill for the 2019-20 budget, says Paul Troxel. Adds Mattson, “in that year, we did a lot of learning, a lot more outreach, and a lot more research.”

Tragically, an historic fire season in California also caught legislators’ attention, highlighting the need for robust emergency communications during disasters. “We could say, ‘this technology will help during these critical emergencies,’” Troxel remembers. “Over the course of the legislative cycle, we were able to focus on factual education. They heard us, and a year ago the legislature voted on it again and it passed—we have a new funding structure.”

A large part of what we’re doing here is trying to help build a template for other states to follow, trying to lay the groundwork because they may not have the resources to do it.

– Andrew Mattson,
Unit Supervisor,
Advisory and Compliance Unit,
Cal OES

BEYOND CALIFORNIA: 5 Lessons from North Central Texas

1. Talk to early adopters. It's easy to be focused on how you're going to transition your little corner of the world to NG911. But the truth is that the ultimate goal is for all PSAPs across the country to be connected. "I feel very strongly that the only way next-gen is going to go national is if the early adopters talk to one another and share information and lessons learned," says Christy Williams. "We set up open communications with early adopters several years ago and Budge [Currier of Cal OES] is part of that. We consult with one another and we share our plans, what's worked and what hasn't."

2. When it comes to communication, don't leave anyone out. Williams says that when she and her team started their first NG911 project back in 2008, there were a couple of audiences they didn't communicate as well with as they should have. NCT9-1-1 is a regional system that includes PSAPs run by cities, counties and police and sheriff's departments. "We learned through our first implementation that even though what we were doing didn't affect city or county systems, there was a lot of interest — and even a sense of combativeness — if we didn't communicate with local IT professionals," she recalls. She and her team also learned to do better at talking to staff at the PSAPs, not just dispatchers and managers, as well as with neighboring areas and other 911 entities to which calls sometimes need to be transferred.

3. Get your PSAPs to weigh in. "Typically, we get information from the PSAPs to build our requirements before we release an RFP," Williams notes. "That's so we're not doing what is new and shiny, what we think would be cool. We want to stay focused on doing what the PSAPs want and need." Those discussions need to happen, she stresses, before you get a new product. "PSAPs need to have a chance to look at different products and tell you what they like and don't like when it comes to features and functionality."

4. Do your best to convert the non-believers. Williams concedes that being among the first organizations to begin adopting NG911 wasn't easy. And certainly not everyone she spoke to at first was on board. "Everywhere I went in the beginning, there was such negativity and resistance," she recalls. "I made it my mission to show the good sides of NG911 every chance I got." It helped to know that improving 911 services wasn't just a nice-to-have; it was essential.

"As a leader, there was a lot of persuasion for different groups, whether it was our chiefs of police or the PSAPs or financial people or executives. It was very important to reach out to all of those groups to let them know the importance of, and the positive side of these new services that we could implement to make a difference in our community." What made the biggest difference in changing hearts and minds? "Sharing examples and scenarios where NG911 could work in their community."

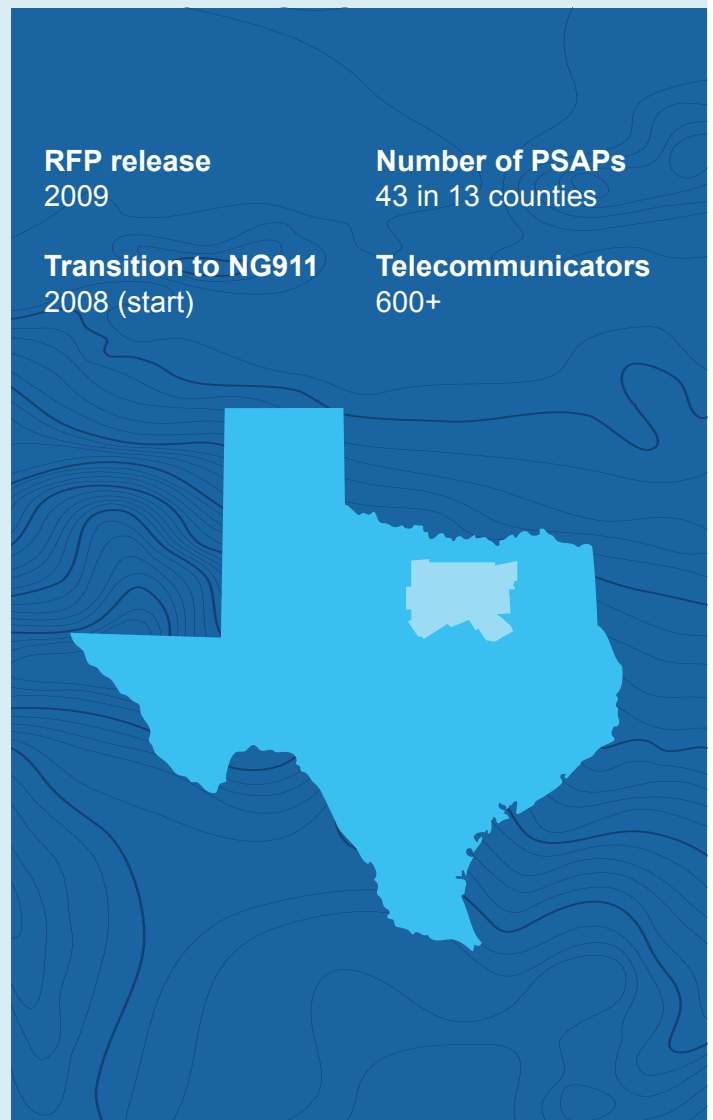
5. Start small, if you have to. "I know there are all kinds of roadblocks — money, politics, technology," says Williams. "But there's something that everybody can do to move them forward on their own journey toward Next Generation 911." And if you don't know where to begin, she adds, pick up the phone or fire off an email. "I have never called anybody in the 911 industry that wasn't willing to talk to me and share their experiences to help me."

RFP release
2009

Number of PSAPs
43 in 13 counties

Transition to NG911
2008 (start)

Telecommunicators
600+



CALIFORNIA'S NG911 PROJECT TIMELINE

2017

Cal OES releases the “NG9-1-1 Transition/ Implementation Plan,” creating the backbone for the current upgrade. The organization also begins the industry research needed to develop the Request for Proposals (RFP) and meets one-on-one with more than 10 next-generation core services (NGCS) vendors wanting to work with California.

Cal OES starts working, too, with the California Public Utilities Commission (CPUC) to ensure that its NG911 solution aligns with CPUC regulations, and the team collaborates with the California Department of Technology (CDT), which serves as the procurement official for the RFP.

2018

The RFP is completed, but the effort is put on hold due to lack of funding. Cal OES develops tariff guidance that successful bidders need to comply with in order to align with CPUC regulations.

Cal OES team attempts to get additional funding to pay for the NG911 upgrade, but the bill fails in the state legislature.

2019

JANUARY TO MARCH

Cal OES team develops and releases the NG911 Request for Proposal (RFP) for prime and regional vendors. The contract is awarded for a statewide GIS (geographic information system) database with corrected and validated PSAP boundaries.

MAY

Team meets with members of state legislature in Sacramento to build momentum in support of 911 funding legislation.

JULY

Senate Bill 96 is signed, granting new funding to pay for the state's upgrade to NG911. The state legislature moves \$50 million from the General Fund to SETNA (State Emergency Telephone Number Account) to cover a lack of revenue from July to December 2019.

AUGUST

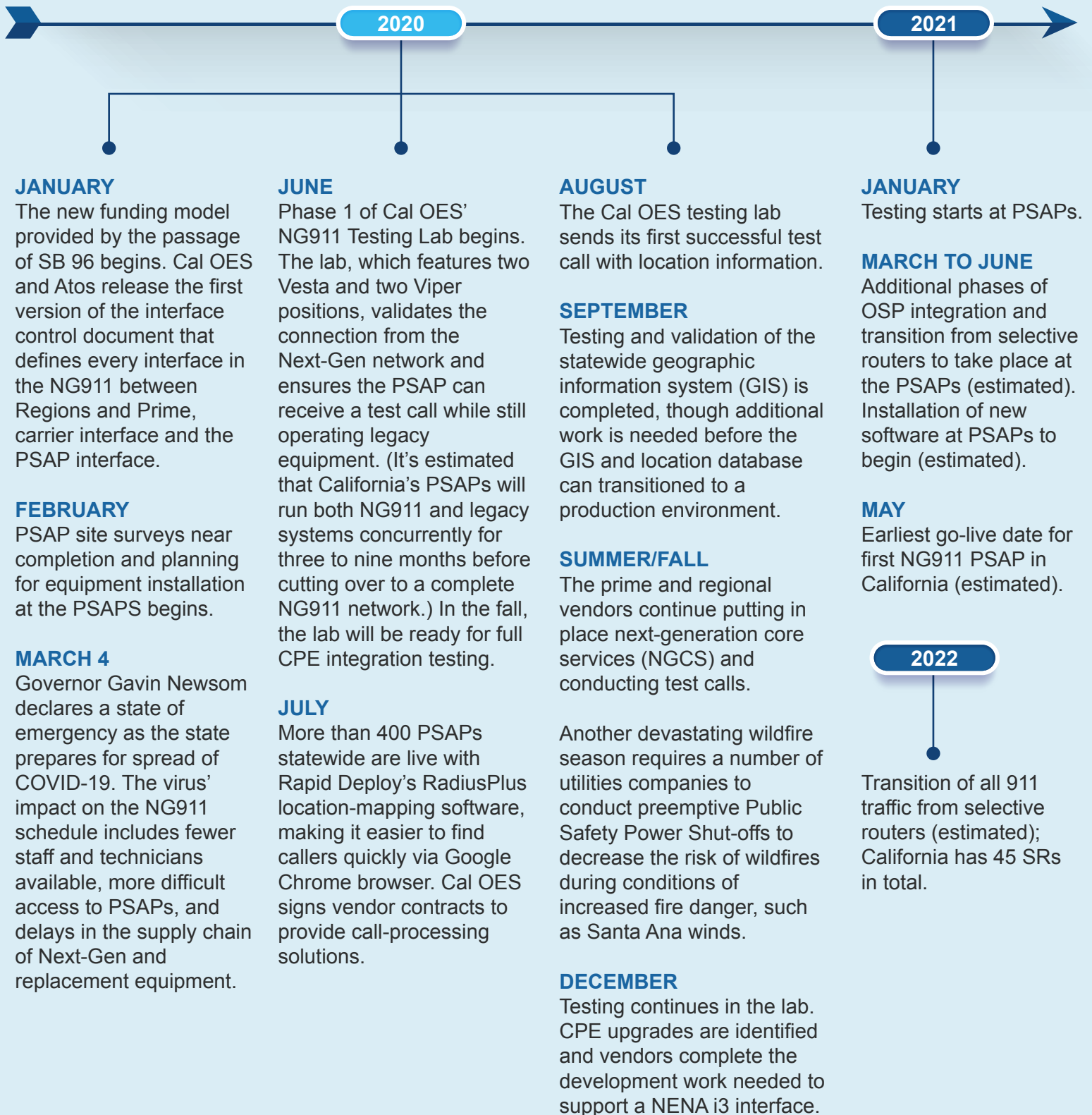
California's State 9-1-1 Advisory Board announces the vendors for NG911 contracts: The prime (statewide) vendor is Atos, and three vendors are named for the four regions: NGA911 (central region and Los Angeles region); Lumen(southern region); and Synergem Technologies (northern region).

SEPTEMBER

Following a pilot program at four PSAPs to test AT&T/Rapid Deploy software that improves location accuracy, the state deploys the technology at all remaining PSAPs. Assembly Bill 1168 is approved by the Governor; it requires that every PSAP deploy text-to-911 service by January 1, 2021.

CALIFORNIA'S NG911 PROJECT TIMELINE

continued



RESOURCES

The National 911 Program:

<https://www.911.gov/>

Next Generation 911 Hub:

https://www.911.gov/issue_nextgeneration911.html

Next Generation 911 Interstate Playbook:

https://www.911.gov/project_nextgeneration911interstateplaybook.html

Next Generation 911 Self-Assessment Tool:

https://www.911.gov/project_ng911tool.html

Next Generation 911 for Public Safety Leaders:

https://www.911.gov/project_ng911publicsafety.html

NG911 Roadmap: Connecting Systems Nationwide:

https://www.911.gov/project_ng911roadmap.html

Association of Public-Safety Communications Officials (APCO):

<https://www.apcointl.org/>

NG9-1-1 Resources:

<https://www.apcointl.org/resources/ng911/>

California Office of Emergency Services (CAL OES):

<https://www.caloes.ca.gov/>

CA 9-1-1 Emergency Communications Branch:

<https://www.caloes.ca.gov/CalOES-divisions/public-safety-communications/ca-9-1-1-emergency-communications-branch>

National Association of State 911 Administrators (NASNA):

<https://www.nasna911.org/>

State 911 Contacts:

<https://www.nasna911.org/contact-911>

National Conference of State Legislatures:

<https://www.ncsl.org/>

911 Legislation Tracking Database:

<https://www.ncsl.org/research/telecommunications-and-information-technology/911-database-overview.aspx>

NENA: The 9-1-1- Association:

<https://www.nena.org/>

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<https://www.caloes.ca.gov/PublicSafetyCommunicationsSite/Documents/9-1-1AdvisoryBoardMembers.pdf>

California Office of Emergency Services, Report for NG9-1-1 Transition Plans (June 2017)

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https://www.911.gov/project_ng911publicsafety/fire/transitioning_NG911_machusetts.html

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<https://www.gov.ca.gov/2020/03/04/governor-newsom-declares-state-of-emergency-to-help-state-prepare-for-broader-spread-of-covid-19/>

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https://www.911.gov/project_ng911publicsafety/law/improving_law_enforcement_in_machusetts.html

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